University of Alberta

Characteristics and Incidence of Patients and Families who make Early Return Visits to the Pediatric Emergency Department

by

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A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Master of Nursing
Faculty of Nursing

Edmonton, Alberta
Fall 2008

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Your file Votre référence
ISBN: 978-0-494-47171-5
Our file Notre référence
ISBN: 978-0-494-47171-5

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Dedication

This thesis represents the culmination of 4 years of work, and would not have been possible with out the help and support of my thesis committee. I express my sincere appreciation to Dr Janice Lander and Dr Jude Spiers from the Faculty of Nursing as well as Dr Samina Ali and my honorary member Dr Amanda Newton from the department of Pediatrics for helping me finish this long journey. I have learned so much and I am a stronger and better person for having worked with them.

I also thank the Stollery Pediatric Emergency Department who at every level helped and supported me. I am truly thankful to every member of the nursing staff and pediatric emergency physicians who helped me recruit participants. I especially thank Karen Latoszek, and Dianne Gazdewich who for the last 2 years worked to make my life manageable.

Finally, I thank my family and friends who provided endless encouragement and endured through the good times and the bad. To my parents who always believed I could do anything, I am the person I am because you never gave up on me. To my two beautiful children Jack and Zoey, thank you for keeping me laughing and keeping me from giving up. To my love Mark Enarson you have taught me to challenge myself, take risks and be adventurous; my life is more colorful with you in it.

Abstract

Early return patients (ERPs) to emergency rooms have been of interest for many years. ERPs in pediatric populations and Canadian settings have received little attention. Survey and chart reviews were used to explore parent's reasons for early return visits and to determine characteristics of ERPs in the pediatric emergency department. 261 parents were asked to participate. Findings included that parents returned because their child had not improved or they were instructed to return. Factors influencing ERPs included age, diagnosis and parent report of stress. Proposed interventions to reduce ERPs included education and discharge planning, and incorporating a Nurse Practitioner follow-up clinic. The study should be expanded to a national level and include qualitative methods to determine what other factors influence ERPs. Using these variables to develop an ERP prediction model could help direct care and resources to provide the best care for those at risk of early return.

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Introduction

Through my work as a pediatric emergency nurse, I became interested in the issue of patients returning to the pediatric emergency department (PED) shortly after having been discharged from it. This is called an early return visit also referred to as a "bounce back" (Pierce, Kellerman, & Oster, 1990). Through discussions with my coworkers I found that early return visits are perceived in various ways by different healthcare professionals. Emergency staffs, depending on their roles, perceive these patients and families differently and have differing opinions on the issues regarding early return visits.

Nurses often voiced the sentiment that the early return patient was often accompanied by a worried parent who was too anxious to wait for their child to get better. They referred to the family as "hypocopic" (lacking coping skills) and suggested that they returned because they needed a reassuring "pat on the head." This would occasionally lead to discussion about improving how nurses teach families to cope. Physicians were more likely to regard these patients from a medico-legal and quality assurance perspective, wondering if something had been missed on the initial visit that could result in harm to the patient. Those in senior emergency administration worried about overcrowding and how the health care system could deal with those who access the emergency department for nonacute presentations.

This population was acknowledged as important by multiple levels of the health care team, and yet the foci for these groups were all different. In the end there remained a lack of understanding regarding the basis for these visits. This

led the push toward exploring the issue more fully in the hope of understanding why these families chose to return in such a short time frame, and to determine if specific characteristics made certain groups a higher risk of an early return visit to the PED.

Background

Millions of children in North America require some form of emergency treatment each year (Li, 2007; LeDuc. 2006). Approximately 2.5% to 5.2% of all patients return to American emergency departments within 72 hours, and pediatric centers have more early return visits than adults, with some studies reporting rates as high as 13.4% (Alessandrini, Lavelle, Grenfell, Jacobstein, & Shaw, 2004; Keith, Bocka, Kobernick, Krome, & Ross, 1989; Zimmerman, McCarten-Gibbs, DeNoble, Borger, Fleming, Hsieh, et al. 1996). Although the topic of early returns visits has been discussed in the literature for over 20 years there continues to be a considerable gap in our knowledge about this issue. The focus of the published work in this area is medical management and quality assurance and the population of study is mainly American adult patients. Little work has been done in this field concerning: pediatric populations; Canadian settings; and family perspectives.

The early return patient (ERP) is of interest to health care on several different levels from frontline nurses and physicians to hospital administrators. The purpose of this study was to explore the incidence and characteristics of

pediatric patients making early return visits to a tertiary care pediatric emergency department, within 72 hours of an initial visit.

Research Objectives

1. To identify reasons why parents chose to return to the PED within 72 hours of an initial visit.
2. To identify the incidence of pediatric patients who return to a Canadian PED in a tertiary care hospital within 72 hours of initial visit.
3. To characterize the variables associated with these return visits.

Thesis Format

This thesis is presented in a paper based format. It includes one manuscript for publication and a second manuscript containing a review of the literature (located in Appendix A). The styles of these two papers differ as one has been formatted according to the manuscript requirements for a medical journal and the other is formatted as a master's paper.

Manuscript 1

This manuscript describes the findings of the exploratory, descriptive study. Parents or caregivers (hereafter referred to as parents) returning to the pediatric emergency department within 72 hours of an initial visit were invited to participate in the study. The study consisted of a survey completed by parents and a chart review. The intent was to describe the pediatric early return

population with an emphasis on parents' reasons for return. Age and diagnosis were found to be significant factors in return visits. Additionally, parental features such as stress were noted to be frequent characteristics in the return population. The results of this study provided information about the factors motivating parents to make pediatric return visits as well as diagnostic and demographic influences in this population. The information collected could help guide national projects aimed at understanding the variables of importance regarding pediatric early return visits and to suggest ways to reduce early returns while providing the best care possible to patients and families.

General Discussion

This section of the thesis reviews the study presented in manuscript 1 and discusses the strengths and limitations of that study. Study design, setting, selection of participants, data collection, and methods of measurement are reviewed with an emphasis on what worked well and what was problematic. The discussion includes what the study means to nursing and in particular what methods advanced practice nurses can adopt to address the ERP population. Implications for future research are touched on.

Appendices

Manuscript 2 (Appendix A) contains a review of the literature regarding the emergency department (ED) early return population. It provides descriptions of the literature for both adult and pediatric populations in terms of medical quality

assurance, diagnostic predictors, emergency utilization, and patient education. The discussion focuses on gaps regarding the pediatric early return visit population, in particular the lack of prospective methods, and lack of Canadian studies. Suggestions for future research include an exploration of parental motivation and a search for factors that influence early return visits in the Canadian health care system.

Other materials included in the appendices include the parental survey including the information sheet provided to parents with the survey (Appendix B), the chart review tool (Appendix C), and the data collection tool (Appendix D).

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Pediatric Emergency Early Returns: Why do they come back?

Abstract

Study Objectives: The primary objective of this research was to identify reasons why parents make early return visits within 72 hours of discharge from a Canadian pediatric emergency department (PED) and to investigate demographic and diagnostic variables associated with those early return visits.

Methods: Survey and chart review methods were used from September 2005 to September 2006. Surveys were distributed to a convenience sample of the parents of pediatric patients returning to the PED within 72 hours of discharge. A chart review was completed on those patients whose parents consented.

Results: A total of 264 parents were approached to participate. Overall, 87.5% of participants returned the survey and 212 charts were reviewed (81%). The rate of return was 5.4% during the study period. Parents most frequently stated (59%) that they returned because of their child's condition and many parents (66.7%) reported feeling stressed. Patients were typically under 6 years of age (67.4%), and most frequently diagnosed with infectious diseases (38%). Patients triaged on the Canadian Emergency Department Triage and Acuity Scale (CTAS) as CTAS 2 on initial visits were more likely to be admitted on return regardless of age ($p < 0.001$).

Conclusion: Factors associated with returns in our sample included age, diagnosis, and stress. Further defining variables associated with early return visits could help develop a tool to identify pediatric patients at increased risk for early return. This could help direct interventions and resources to address needs

in this group and pre-empt the need to return. Deeper exploration of modifiable factors such as stress and patient education should be considered.

Pediatric Emergency Early Returns: Why do they come back?

Background

A major issue in the Canadian health care system is over-utilization of services provided in emergency departments (ED). In the pediatric population the issue of overcrowding has been described as a "national crisis for children" (Weiss, Ernst, Sills, Quinn, Johnson, & Nick, 2007, p. 641). Patients returning to general EDs shortly after an initial visit account for up to 14 percent of all emergency visits per year (Alessandrini, Lavelle, Grenfell, Jacobstein, & Shaw, 2004; Zimmerman, McCarten-Gibbs, DeNoble, Borger, Fleming, Hsieh, et al., 1996). This represents millions of return visits each year to North American centers (Goldman, Ong, & Macpherson, 2006, 2006; Adekoya, 2005). Besides potentially burdening the health care system, pediatric early return patients (ERPs) risk exposure to infectious diseases while waiting to be seen. In the quality assurance literature, return visits are often considered to be an indication of potential medical management errors associated with inappropriate assessment or treatment. Less often discussed by authors is that these patients may represent a group with unmet needs related to discharge education and follow-up (Goldman et al., 2006; Keith, Bocka, Kobernick, Krome, & Ross, 1989, 1989; Alessandrini et al., 2004). The reasons parents and families return to the pediatric emergency department (PED) are currently being debated, and some reasons may be unknown.

The topic of early return visits to the ED has been studied internationally. With few exceptions, the studies in this area have been retrospective in design

and have taken place in American general EDs with limited pediatric representation. The foci for these studies have been quality assurance, diagnostic indicators, and patient and parent characteristics (Alessandrini, et al., 2004; Depiero, Ochsenschlager, & Chamberlain, 2002; Goldman, et al., 2006; Hu, 1992; Jacobstein, Alessandrini, Lavelle, & Shaw, 2005; Lerman & Kobernick, 1987; Pierce, Kellerman, & Oster, 1990; Zimmerman et al., 1996). The heterogeneity of the foci, the lack of prospective approach and the scarcity of pediatric and family based data are all significant limitations to the current understanding of this issue. To date, only one Canadian pediatric study has been published (Goldman, et al., 2006). Goldman et al. focused on specific characteristics of the Canadian ERP population using a retrospective approach, and thus could not explore the reasons why patients and families returned to the ED soon after discharge. Only Leduc et al. (2006) conducted a prospective study of recidivism, or "persons who make repeated visits to the emergency department," in an American PED (LeDuc, Rosebrook, Rannie, & Gao, 2006, pp.132). They were interested in return visits made within 48 hours to 3 months. However, they were unable to fully explore the 48 hour return group due to sample size limitations. They recommended further research on early identification of those at risk to return and education and follow up programs (LeDuc et al., 2006).

In order to better serve the pediatric early return population it is essential that we have a comprehensive picture of this group and the physiologic, emotional, and educational factors that influence their return. The lack of

prospective studies and Canadian studies in pediatrics, as well as the limited understanding of the role of influencing factors in pediatric early returns to the ED indicate barriers to addressing the problem of pediatric early returns. The primary objective of this study was to identify reasons for parents returning to the ED within 72 hours of their initial visit. The secondary objective was to investigate demographic and diagnostic variables associated with early return visits.

Methods

This prospective study used survey and chart review methods over a one-year period (September 1, 2005 to August 30, 2006). The study took place at the Pediatric Emergency Department (PED) of a major urban tertiary care center in Western Canada. The PED is nested within the General Emergency Department and has 12 pediatric bays with an additional area established for trauma. In 2005–2006, the PED had an annual census of approximately 22,000 patients.

Sampling and Recruitment

Potential subjects were identified as "early return" if they had returned within 72 hours of their discharge from the PED. All parents or caregivers (hereafter referred to as parents) of pediatric patients returning to the pediatric ED within 72 hours were considered eligible for enrollment in the study. Parents were excluded if the child they accompanied was over the age of sixteen or if their English language fluency prevented then from completing the survey. This was identified during the initial history taken by PED nursing or medical staff.

Survey packages were attached to the child's emergency chart along with the emergency record from the initial visit; consent for chart review was included within the survey. A convenience sample was obtained over a 12 month period in order to capture seasonal and school related factors. Not all potential subjects were recruited into this study because of the lack of available research staff for recruitment and workload conditions.

Data Collection

The survey and chart review tools were developed for this study following a review of the literature and each was reviewed by practicing pediatric emergency physicians and nurses for content validity. The information in these tools was piloted to establish face and content validity. Chart reviews and data extraction were completed by two trained reviewers, the study's principal investigator (EL) and a second reviewer (KS). Incomplete records were included in the study on a chart-by-chart basis with consensus between reviewers. The abstraction of chart review did not require blinding of the reviewers due to the exploratory nature of the design. The chart review process was structured in a format guided by the literature in order to minimize inconsistencies and the review was monitored using weekly meetings to address potential problems in the review process (Gilbert, Lowenstein, Koziol-McLain, Barta, & Steiner, 1996; Panacek, 2007).

A complete review of all documents was done from each PED visit.[1] The chart review was included to identify and document the use of written information, patient education, referrals, having a primary physician, whether the return was scheduled, and if the child was admitted on the return visit. The survey included nine questions related to the following broad categories: patient teaching, parental stress and attitudes, and demographics. The questions about patient education materials were included to determine if current education tools were being utilized in the department and to determine the family's perspective on their usefulness. The survey also included an open- and close-ended question that focused on reasons why parents returned to the PED.

Data Management and Analysis

Chart review data were collected by trained reviewers and entered into SPSS v. 16 from the standardized data collection form. Data were verified for accuracy and consistency by an independent second reviewer who reviewed a random 20% of the charts. Additionally, 20% of the data on the SPSS spreadsheet were also checked by a second reviewer for keystroke error.

Descriptive statistics were used for chart review data and close-ended survey data. Final classifications from the open-ended responses and chart review variables were analyzed using descriptive statistics and chi-square tests. Variables with multiple classifications were changed to dichotomous variables for chi-square analysis.

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[1] Depending on the length and complexity of the patient's stay in the ED, the chart may or may not have included an Emergency Nursing Assessment Record, Order Sheets and Physicians Progress Notes.

Results

The census for the PED during the study period was 21,474 visits. During the one year study period, 1173 (5.4%) patients made early return visits. A total of 264 parents were approached for inclusion in the study. Of the 264 surveys distributed, three cases did not meet inclusion criteria and 30 surveys were not returned or were returned unanswered, providing an 87.5% return rate for the survey. Permission for the chart review was given by 212 participants (81%). Characteristics of early return visits are summarized in Table 1-1.

In our sample, 26% of the return visits were considered to be "scheduled." Scheduled visits were identified via chart review and defined as any chart that had documentation indicating that the family had been asked to return during the 72 hour period for any reason. Examples of scheduled returns included children returning for dressing changes or wound care, IV therapy, or to check hydration status for those with severe vomiting and diarrhea.

Children ranged in age from 0 to 16 years (n = 261, mean = 4.4 years). Mothers most frequently accompanied the child. The most frequent parent age group was 30 to 34 years. Most parents had completed high school or more and reported having a physician (family practitioner or pediatrician). The characteristics of the patient sample are summarized in Table 1-1 and characteristics of parents are summarized in Table 1-2.

Impact of Child's Age

About two thirds (67.4%) of the children in our sample were aged 0 to 5 years. The PED census for the year of the study for children aged 0 to 5 years was 58%. Therefore, age was examined as a potential factor in return visits and patient age was grouped into two categories for analysis: preschool (0 to 5 years) and school-age (6 to 16 years). Chi-square tests were completed comparing these two age groups to determine if age affected the chance of having a specific diagnosis and parental report of stress. Parent stress was found not to be significantly different between the two age groups.

Diagnostic Information

The information related to diagnosis was classified into five categories using an adaptation of the approach used by Alessandrini et al. (2004). Diagnoses were recorded as documented on the chart and then placed into one of five categories: (1) Infectious diseases (non-respiratory), (2) respiratory presentation, (3) abdominal presentation, (4) trauma or musculoskeletal (MSK), and (5) miscellaneous (see Table 1-4).

Infectious disease (non-respiratory) was the most frequent diagnosis on initial visit (38.5%) across all ages. Preschool patients were found to be more likely to have a diagnosis of respiratory presentation (chi-square = 22.2; df = 1; $p < 0.001$) and school-aged patients were found to have an increased likelihood of return due to trauma/MSK diagnosis (chi-square = 31.8; df = 4; $p < 0.001$). For children across all ages, a diagnosis of infectious disease was the most frequent presentation with 38% of patients having an infectious disease diagnosis. A

respiratory presentation on initial visit was the most likely reason for patients to require admission on return (chi-square = 6.3; df = 1; $p = 0.012$).

Triage Score

Acuity was scored using the Canadian Emergency Department Triage and Acuity Scale (CTAS). Of the ERPs included in the chart review, the triage scores were as follows: resuscitation (CTAS 1) (n = 0, 0%), emergent (CTAS 2) (n = 32, 15.2%), urgent (CTAS 3) (n = 132, 62.6%), semi-urgent (CTAS 4) (n = 45, 21.3%) and nonurgent (CTAS 5) (n = 2, 0.9%). Patients were more frequently triaged as acute on initial visit with 77.8% triaged as CTAS 2 or 3 but with no patients scored as CTAS 1. On return the average acuity decreased to 69.7% of patients scored as CTAS 1, 2, or 3.

The initial visit triage score was analyzed to determine if there were different admission rates on return. CTAS 2 (emergent) was compared with CTAS 3, 4, and 5, using chi-square analysis. Children who were triaged CTAS 2 on initial visit were significantly more likely to require admission on return than children initially triaged as CTAS 3, 4, or 5 ($p < 0.001$)

Reasons for Returning to the PED

Of the 228 surveys returned, 222 parents described the reasons for bringing their child back to the PED (see Table 1-3). The open-ended data were examined independently by two reviewers and classified using content analysis. Parents could give multiple responses to the question. Responses were

classified into 13 categories by two coders (see Table 1-4). In cases where the coders' categorizations differed, responses were subjected to a second review. There were no unresolved discrepancies following the second review.

For some age categories there were too few responses for analysis. The five categories with the greatest frequencies were analyzed individually using chi-square analysis. Of these five categories for return, three were found to be significantly different for children's age categories. The parents of children aged 5 years and under were significantly more likely to have responded that their child's' condition had worsened or had not improved (chi-square = 12.2; df = 1, $p < 0.001$). Parents of younger children were also more likely to state that they returned because of the discharge teaching they received on when to return to the PED (chi-square = 5.8; df = 1; $p = 0.015$), than children 6 years and older. Parents of school aged children were more likely to report they returned for PED resources than parents of preschool children (chi-square = 7.8; df = 1; $p = 0.005$) (see Table 1-4).

Parents were asked if they were given any written information regarding their child's illness. Fourteen percent of parents recalled being given patient education materials with 63.1% of those indicating that they found these materials *helpful* or *very helpful*. The chart review data revealed that only 4.8% of charts had written documentation that educational materials had been disseminated to parents.

When asked how stressed they felt about their child's illness, 68.5% of parents answered that they felt *stressed* or *very stressed* about their child's

illness. Finally, when asked if they could express true feelings to the ED physician, 85.1% of parents *agreed* or *strongly agreed*.

Discussion

The rate of return to the PED for our study is similar to other reported Canadian figures, and is higher than American pediatric return rates. Our sample includes scheduled ERPs, a factor not consistently included in the available American research. The lower American return rates may also be a reflection of differences in the health care systems in Canada and the United States. Li et al. (2007) compared emergency department utilization patterns in the United States and Ontario, Canada. The American system of private healthcare insurance and Medicaid leaves the ED to serve as a safety net for the uninsured and has been implicated in American ED overcrowding. The Canadian medical system is based on universal access, and this ease of accessibility has also been implicated in Canadian ED overcrowding. Li et al. found similar utilization patterns in the United States and Ontario. The only significant clinical differences found between the two systems were related to acuity. Patients in the United States were more likely to have conditions that required immediate attention and were more likely to be admitted (Li, Lau, McCarthy, Schull, Vermeulen, & Kelen, 2007). The lower rates of return in the United States may reflect of a higher overall admission rate.

The two most likely reasons for returning given by parents in our study related to their child's symptoms and to physician discharge instructions on what to watch for and when to return. As healthcare professionals, we do not want to

systematically discourage families from returning to the PED if they feel that their child's condition warrants it. Proper understanding of the natural course of illness and appropriate follow-up care could possibly pre-empt the need for some of these returns.

The third most frequently cited reason for parents' return was related to a need to access ED-specific resources that were not available during the initial visit. Examples might include ultrasound, or to see a specialty service such as surgery or neurology. This is a resource-related problem and should be explored from an administrative perspective. If patients require hospital services that are not available 24 hours per day and are not ill enough to stay in the PED until those services are available, an alternate follow up plan could be implemented for these patients. The potential to develop or use other out-patient services in order to decrease over utilization of PED resources should be considered.

The mean age of the ERPs in our sample is consistent with other Canadian and American pediatric studies (Alessandrini et al., 2004; Goldman et al., 2006). Previously published authors indicated that younger children are more likely to make early return visits to the PED (Brown & Goel, 1994; Goldman et al., 2006). Younger children are more susceptible to infectious diseases and respiratory illness. The younger the children, the more likely it is that they have been exposed to these illnesses for the first time before they have built immunity, increasing the severity of the illness (American Academy of Pediatrics, 2006)

The diagnostic information of greatest interest in our sample was from the initial visit. Intervention planning would need to be set in motion during the initial

visit in order to influence early return rates. Looking at diagnosis combined with age could identify patients that are at increased risk of early return. This would allow for more directed strategies. For example, intensive teaching for the parents of children aged 0 to 5 years who present with respiratory illness or patients aged 6 to 16 years presenting with traumatic injuries might be an area to address. Focusing attention on what to expect at home, the natural course of the illness, as well as more guided and organized follow-up may decrease the need to make early return visits for some of these patients.

Parental stress as a variable for early return visits has not been well explored. The majority of parents in our sample reported feeling *stressed* or *very stressed*, but we do not have a clear understanding of what the sources of stress were. Given this, parental stress as an influence on early return visits needs further exploration, with an emphasis on mediating and moderating factors. A more focused study to identify sources of stress in those parents at higher risk for return and to determine methods of addressing those stressors in the PED should be considered.

The identification of specific variables associated with early return visits would allow PED staff to develop programs that target patients at high risk of return. Several authors suggest strategies such as follow-up phone calls, more intensive education, and directed follow-up to decrease the number of early return visits. However, we found no studies that looked at the efficacy of such interventions with regard to early return rates (Depiero, Ochsenschlager, & Chamberlain, 2002; Gordon, An, Hayward, & Williams, 1998; Chande & Exum,

1994). Programs that allow for more focused education, discharge instruction, and follow up could pre-empt the need for some return visits but these programs require evaluation to determine their usefulness in this population.

Although PED utilization and quality assurance information have often been the center of early return visit literature, they were not included in this study. The definition of what is an appropriate emergency visit is variable and "physicians of varying specialties have been shown to have poor interrater reliability when it comes to defining what constitutes an emergency" (Doobinin, Heidt-Davis, Gross, & Isaacman, 2003, pp. 13). Given that physicians have great difficulty in deciding what an "appropriate PED visit" is, it is unrealistic to expect parents to be able to do so.

The data for this study were collected from a single PED and it would be of value to explore ERPs on a national level in order to determine the impact of this issue on the greater Health Care system. Further investigation could allow for the development of a clinical prediction tool to help identify patients at high risk for early return. This tool could allow PED centers across North America to better focus their interventions in order to increase educational and psychosocial supports and to develop alternate follow-up strategies. This could be helpful on multiple levels, directing resources to meet patients' and families' needs and potentially decreasing the burden on the emergency department.

Conclusion

Determination of the best way to eliminate pediatric early returns was not the purpose of this study. Normal progression of illness and vague early presentations are part of the complexity of practicing patient care in this environment. Parents and families should feel they are welcome to return to the ED if they are concerned. Modifiable and nonmodifiable variables proved to be significantly associated with early return visits. Nonmodifiable variables such as patient age and diagnosis could be paired with modifiable factors such as increased educational strategies to target the best ways to inform parents so they will feel comfortable making decisions regarding what type of follow-up their child requires. In order to better meet the needs of families, we need a better understanding of what motivates them. Identification of the factors in our sample is the first step toward developing a tool to identify pediatric patients and families at increased risk for early return visits. Such a tool would be invaluable for identifying interventions and resources that would address needs in this group before they return. Consistent and modifiable parental factors such as stress and patient education that correspond with pediatric ERP variables such as age and diagnosis should be explored.

Table 1-1

Characteristics of Early Return Patients and Visits

Characteristics	Frequency	Percent of Sample	Number of Patients
Age of Patient			
0 to 5 years	176	67.4	
6 to 16 years	85	32.6	
Total			261
Gender of Child			
Male	160	61.3	
Female	101	38.7	
Total			261
Shift of Return			
00:00 to 07:59	17	8.1	
08:00 to 15:59	105	49.8	
16:00 to 23:59	89	42.2	
Total			211
Day of the Week of Return			
Monday	29	13.7	
Tuesday	32	15.2	
Wednesday	22	10.4	
Thursday	22	10.4	

Table 1-1 (continued)

Characteristics	Frequency	Percent of Sample	Number of Patients
Day of the Week of Return			
Friday	31	14.7	
Saturday	31	14.7	
Sunday	44	20.9	
Total			211

Table 1-2

Characteristics of Early Return Parents

Characteristics	Frequency	Percent	Number of Parents
Age of Parents			
< 18	6	2.7	
18 to 29	62	27.9	
30 to 39	99	44.6	
40 to 50	43	20.1	
> 50	4	1.9	
Total			214
Level of Education of Parents			
High School	65	24.9	
College	65	24.9	
University	76	29.1	
None of the Above	8	3.1	
Total			228

Table 1-2 (continued)

Characteristics	Frequency	Percent	Number of Parents
Level of Stress on Return Visit			
Not Stressed at All	5	2.6	
Not Stressed	17	7.5	
Neutral	48	21.1	
Stressed	72	31.6	
Very Stressed	80	35.1	
Total			222

Table 1-3

Parent Response Classifications

Parental Response Classifications (responses classified into multiple categories where appropriate)	< 5 yrs n (%)	> 6 yrs n (%)	*p*(< 5 yrs vs. > 6 yrs)	Sample Frequency: n (%)
1) My child's symptoms got worse or changed or the symptoms did not improve	102 (75.6)	33 (24.4)	$p < 0.001$	135 (59)
2) Specific to ED instructions on what to look for and/or when to return	39 (81.2)	9 (18.8)	$p = 0.042$	48 (21.1)
3) Resources not available until the next day or IV therapy or ED specific therapy	15 (45.5)	18 (54.5)	$p = 0.005$	33 (14.5)
4) My doctor's office or the on call physician or health link sent me in	17 (70.8)	7 (29.2)	—	24 (10.5)
5) The doctors asked us to come back for a recheck	9 (47.4)	10 (52.6)	—	19 (8.3)
6) No diagnosis given or I wanted more information and/or test results	11 (91.7)	1 (8.3)	—	12 (5.3)
7) Recurrence of symptoms	8 (66.7)	4 (33.3)	—	12 (5.3)
8) Emergency was the most trusted or convenient	3 (50)	3 (50)	—	6 (2.6)
9) My doctors office was closed; I was not able to make an appointment	5 (100)	0 (00	—	5 (2.2)
10) Treatment complication	0 (0)	5 (100)	—	5 (2.2)

Table 1-3 (continued)

Parental Response Classifications (responses classified into multiple categories where appropriate)	< 5 yrs n (%)	> 6 yrs n (%)	P(< 5 yrs vs. > 6 yrs)	Sample Frequency: n (%)
11) I don't think the doctor made the right diagnosis or I didn't like the recommendations	1 (25)	3 (75)	—	4 (1.8)
12) No family doctor	2 (66.7)	1 (33.3)	—	3 (1.3)
13) Not stated	6 (60.0)	4 (40.0)	—	10 (4.4)

Table 1-4

Diagnosis Classification on Initial Visit

Diagnosis Initial Visit	Age 0 to 5 n (%)	Age 6 to 16 n (%)	n (%) *p*
Infectious disease	51 (65.4)	27 (34.6)	78 (38)
Viral Illness	9 (90.0)	1 (10.0)	____
Fever NYD	12 (80.0)	3 (20.0)	
Gastroenteritis	17 (81.0)	4 (19.0)	
Cellulitis	3 (23.1)	10 (76.9)	
Acute otitis media	4 (100)	0 (0)	
Pharyngitis	2 (33.3)	4 (66.7)	
Urinary Tract infection	2 (40.0)	3 (60.0)	
Trauma/MSK	5 (27.8)	13 (72.2)	18 (8.8)
Fracture	0 (0)	8 (100)	$p < 0.001$
Back pain	0 (0)	2 (100)	
Trauma	2 (66.7)	1 (33.3)	
Misc	2 (50.0)	2 (50.0)	

Table 1-4 (continued)

Diagnosis Initial Visit	Age 0 to 5 n (%)	Age 6 to 16 n (%)	n (%) *p*
Respiratory	48 (94.1)	3 (5.9)	51 (24.9)
Bronchiolitis	13 (100.0)	0 (0.0)	$p < 0.001$
Croup	12 (100.0)	0 (0.0)	
Asthma	7 (87.5)	1 (12.5)	
Pneumonia	2 (66.7)	1 (33.3)	
URTI	11 (100.0)	0 (0.0)	
Cough	2 (100.0)	0 (0.0)	
Foreign body airway	1 (50.0)	1 (50.0)	
Abdominal	15 (55.6)	12 (44.4)	27 (13.2)
Abdominal Pain	4 (28.6)	10 (71.4)	____
Vomiting (no diarrhea)	6 (85.7)	1 (14.3)	
Dehydration	3 (75.0)	1 (25.0)	
Bowel Obstruction	1 (100)	0 (0)	
GERD	1 (100)	0 (0)	
Miscellaneous—weakness, febrile seizures, seizures, rash, poor feeding, headache …	19 (61.3)	12 (38.7)	31 (15.1) ____
Total	138	67	205

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General Discussion

Early return patients (ERPs) have different influences and it is imperative to gain insight from the key participants when attempting to understand the issues. In order to adopt appropriate strategies and interventions to improve care, we must understand the parent's perspective. Diagnosis, medical management, patient education, and follow-up potentially affect the ERP population. Thus an approach that included both a prospective survey of parents and a chart review for demographic and diagnostic information was adopted for this study.

The comments that I wish to make in this section deal with what I learned from conducting this research. My remarks deal with study design, location of the research, data collection and measures, and implications for nursing and research.

Study Design

A survey design with open-ended questions was used to obtain information from parents and to give participants an opportunity to describe experiences in their own words (Boynton & Greenhalgh, 2004; Rattray & Jones, 2007). The written responses included detailed paragraphs and responses in point form.

Three additional open-ended questions were included to obtain parents' perspectives on information given prior to discharge at the end of the initial visit. The purpose of these questions was to identify discharge information that may

not have been documented on the chart. Analyses were not completed on these questions as they were most often left blank.

The limitation of utilizing the open-ended format is that it may create a burden for participants (Boynton & Greenhalgh, 2004). For the researcher, however, these data are more complex to interpret than close-ended questions (Rattray & Jones, 2007). Nevertheless, the richness of data collected with these questions was invaluable.

If this study were to progress to a multisite, national project, the open-ended questions would not be time and cost effective. Instead, it would be more useful to sample a small group to achieve more in-depth interviews with parents about their experiences and motivations. A qualitative approach such as interviews and focus groups would allow for a more in-depth exploration of parents' responses, possibly teasing out additional information or themes not identified in our sample (Boynton & Greenhalgh, 2004; Rattray & Jones, 2007).

The chart review was included to link survey data with key clinical features. Chart review information is an important source of medical information; in fact, "medical record review studies make up 25% of all peer reviewed, emergency medicine journals and 53% of emergency medical services studies" (Worster et al., 2005). However, medical record documentation is not an ideal source of data for reasons such as missing data and illegible or contradictory information.

Despite these limitations the data collected from the chart review was important for understanding what part the PED plays in the early return process.

Information was collected regarding instructions given to parents about returning, follow-up requests, and to determine if parents were given any written information. Follow-up recommendations and written information were not always recorded. It is not clear, therefore, if the problem rests with a lack of documentation, a lack of recommendation, or both factors. For that reason, patient education and follow-up may be influencing factors that should be looked at more closely in future studies.

Impact of the Setting

The PED is a challenging environment in which to collect data. The pace can be hectic and families are often vulnerable. We approached families at the beginning of there return visit and asked them to complete the survey when they had available time. Although we included self addressed envelopes with each survey to give parents the option to complete it at home, the vast majority of the surveys were filled out while parents were waiting to be seen by the physician. Several measures were taken to emphasize confidentiality and thus limit response bias, such as having the parents seal the information in an envelope and drop the envelope into a box. It is, however, very difficult to overcome response bias when recruiting participants within the PED. It must be acknowledged that some of our participants may have felt helpless while under the care of emergency department staff and thus uncomfortable expressing their true feelings. Nevertheless, encouraging parents to mail the surveys would have likely significantly reduced the response rate. As this study was unfunded,

recruitment was dependent on proper identification of potential subjects by the PED staff during their shift and was influenced by time constraints and workload. Ideally, this type of recruitment would be done by designated staff that could approach all early return patients and track recruitment based on exclusion criteria and refusal to participate. This would allow us to determine salient characteristics of nonresponders. In the future perhaps recruiting subjects in the PED to participate in a follow-up phone survey may be an alternative allowing for the tracking of non responders and limiting response bias.

Selection of Participants and Generalizability

Generalizability is complex when dealing with care in the PED, "the unpredictable and acute nature of the emergency department presents difficulties in data collection because of limited staffing and patients' needs" (Zuspan, 2006, p. 301). In our study all families of patients who returned within the 72 hour time frame were eligible to be in the study. As this study was unfunded we relied on the PED staff, both physicians and nurses to identify subjects and distribute surveys. This produced a convenience sample of 261 subjects approached for participation, limiting the generalizability of the results. Although random sampling method is the gold standard in order to generalize information, we did not have the funding to be present in the PED 24 hours per day 7 days per week as would have been required. Thus, there is no guarantee that the information is representative of the totsl ERP population. However, the use of a convenience

sample in this case has been very useful in providing preliminary insight into this group and in helping to generate future hypotheses and study design.

The sample for this study was taken from a single emergency department in an area of the city with relatively high socio-economic and educational levels. Parents who did not have the English language comprehension to complete the survey were excluded. These limitations could also affect the generalizability of the data we collected. Language fluency must be considered to be a potential issue in ERP. Statistics Canada reported that in 2007 Edmonton had a foreign-born population that was 1.3% higher than the national average and that 20.9 % of Edmontonians speak English as a second language. This population may also have a higher risk of poverty, social exclusion, and chronic illness, as well as difficulty understanding elements of treatment such as patient education, discharge instructions, and navigating the Canadian healthcare system (Boynton, Wood, & Greenhalgh, 2004). In order to approach minority and vulnerable populations on a national level, items should be translated and extensive collaboration undertaken with community representatives during study design (Boynton et al., 2004).

Data Collection Tools and Measures

An existing previously validated instrument was not available to answer questions directed at parents' experiences. In order to collect this information a prospective 14 question survey was developed, guided by the literature and experienced PED staff. This methodology had both strengths and limitations and

provided valuable insight into how to streamline this process in order to extend this research to a national level.

Stress is a very complex emotion to measure. The tools available to measure stress would have significantly increased the length of the survey, possibly making it less appealing to complete. We chose Instead to have parents gauge their stress on a Likert scale. The use of a close-ended question in this case allowed for the parents to respond quickly and reduced the potential for survey fatigue. In this study the purpose of the survey was exploratory and the Likert scale allowed for the identification of stress as an issue for parents of ERPs.

Parents of younger children may find themselves feeling more stress because of the inability of the child to tell them what is wrong. It is possible that stress related to feelings of responsibility for a child's well-being may influence a parent to revisit the PED (Guttman et al., 2001; Phelps et al., 2000). Stress was an issue with a significant number of parents in our sample. The significance of stress as an influence on early return visits needs a more focused exploration, with an emphasis on mediating and moderating factors. The possibility of screening parents for stress may help to tailor interventions to address parental or family needs in the PED. This may require a more focused study directed at identifying parental stress in the PED and asking specific questions about what influences parental stress in general. Further research into sources of parental stress as it pertains to the ERP possibly using qualitative approaches should be considered and could then inform future PED studies.

Implications for Nursing

Nurses in the PED often spend more time interacting with families than other staff or physicians. The development of a tool to predict the likelihood of early return would be especially useful to nurses as they have more opportunity to identify patients at high risk for return and to deliver specific interventions. Interventions such as phone follow-ups and more intensive discharge planning have been suggested as possible remedies for ERPs (Jacobstein et al., 2005; Gordon, An, Hayward, & Williams, 1998).

The literature on adult ERPs often discusses telephone follow-up as a potential intervention to address return visits in the adult population. Several authors have speculated that follow-up phone calls may be helpful to parents in the first few days following their visit to the PED. Mistiaen and Poot (2006) did a systematic review on telephone follow-up as a tool to address patient post discharge problems. While the study did not generate support for telephone follow-up, no evidence was found to support excluding it from discharge planning (Mistiaen & Poot, 2006). These authors suggest several important factors need to be considered in using this approach with the ERP, including who should make the calls, when the calls should be made, how many calls should be made, and the structure of the calls, in order to be consistent (Mistiaen & Poot, 2006).

With workload and staffing concerns ever-present in the PED, this approach would require a designated person with a structured role. This role could be structured in a way that would include more intensive education

discharge teaching and standardized tools to document the plan of care. The development of a discharge tool that is patient specific and includes a copy given to the parent and a copy for the chart would decrease inconsistent documentation and allow for more effective evaluation of the discharge process. Designating a staff member to provide phone follow-up and more extensive education and discharge planning could be cost effective and improve throughput in the PED.

The Role of the Advanced Practice Nurse (APN)

Many articles have been published about the role of the advanced practice nurse (APN) in the emergency department, including current literature with a focus on development of the APN role in the PED. Carter and Chochinov (2007) completed a systematic review of the role of nurse practitioners (NPs) in the emergency department. Outcome measures included cost, quality of care, patient satisfaction, and ED wait times. They concluded that NPs reduced wait times, provided quality care, were more expensive than residents, and were less costly than physicians. NPs saw lower volumes of patients but this extended contact was thought to be related to improved communication and patient satisfaction. The value was demonstrated as patients were overall very satisfied with the care provided by NPs and "received more health information and better discharge instructions" (Carter & Chochinov, 2007, pp. 293).

The expanding role of the advanced practice nurse in the PED could be incorporated into planning regarding ERPs in the PED. The NP role could

incorporate follow-up calls, scheduled visits, and provide additional support to families who return due to psychosocial issues or a lack of support in the community. The implementation of a NP-run follow-up clinic could be a cost effective method of dealing with ERPs. With a tool to identify those at higher risk of return, guidelines could be developed to define the scope of such a clinic. This type of project would need to be piloted in order to benchmark the costs associated and comparative effects on departmental flow.

Implications for Future Research

I was fortunate to have the opportunity to present the background and protocol for this study at the Pediatric Emergency Research Canada (PERC) general meeting in 2006. PERC is a collection of national researchers from 14 pediatric centers across Canada. As previously stated I feel that this study should be viewed as a pilot. It may be beneficial to survey PED nurses, pediatric emergency physicians and administrators on their views regarding ERPs in order to understand and gain input from all stakeholders. A national review of factors that motivate ERPs would be ideal as a preliminary step towards the possible development of a clinical prediction model.

A prediction model is used to determine the probability of an event, in our case, the likelihood of returning to the PED within 72 hours of an initial visit. The development of a Canadian early return clinical prediction model could determine who would be likely to return and where to focus additional resources. This has the potential to achieve cost savings while providing care that best fits patients'

needs (Reilly & Evans, 2006). Several variables were explored in this study that could be included in a data set for development of such a model. Patient age, diagnosis, and triage score are factors related to early returns in our sample. Less tangible variables such as parental stress and motivations and patient education need to be strictly defined. However, first, I will examine on a national scale the variables that most highly correlate with returns to Canadian PEDs within 72 hours of initial visits.

Conclusion

After completing this study we are in a better position to determine more effective ways to approach a national study of early returns to PEDs. Potential interventions include telephone follow-up, increased education, and better discharge planning for those deemed to be at high risk of return. The establishment of an NP-run PED follow-up clinic could also be a cost effective method of addressing the needs of this group. Future projects should consider translation of surveys in order to include a more representative sample population, and the use of qualitative methods such as focus groups to determine what other factors influence ERPs. This research is a valuable first step toward exploration of pediatric ERPs on a national level. A long term goal is to develop a clinical prediction model that will guide us toward providing better care for those at risk of early return to the PED.

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Appendix A

Pediatric Early Return Patients: A Review of the Literature

Abstract

Pediatric early return patients have been identified as a group at higher risk for medical management errors and contribute to emergency department (ED) overcrowding. We conducted a review of the current literature examining pediatric early return patients (ERP). This review presents an analysis of the literature and provides recommendations for ED nursing care, administration, and future research. The literature search includes five electronic bibliographic databases: CINAHL (Cumulative Index to Nursing and Allied Health Literature), Cochrane Controlled Trials Registrar, EMBASE (Excerpta Medica), HealthStar, and MEDLINE. The table of contents for *Pediatric Emergency Care* and *Annals of Emergency Medicine*, from 2000–2007 were hand searched. The reference lists of all retrieved studies were reviewed for further relevant citations. Adult and pediatric studies were retrieved. ERP studies demonstrated significant heterogeneity in variables of significance, were inconsistent in their description of salient ERP characteristics, and were inconsistent in making concrete recommendations for change. We found a lack of exploration of what motivates parents to make early return visits. There remains a gap with regard to prospective parent focused data, Canadian perspective, pediatric perspective, and the role of nursing in addressing this issue. Given the inherent differences between American and Canadian systems, and differences between adult and

pediatric emergency patients, it is imperative to establish an understanding of the Canadian perspective of pediatric early return visits.

Pediatric Early Return Patients: A Review of the Literature

Introduction

Pediatric early return patients account for millions of visits to emergency departments in North America each year (Goldman, Ong, & Macpherson, 2006; Adekoya, 2005). The factors that influence a parent or caregiver's decision to return to the emergency department (ED) shortly after discharge (time frames vary but usually range from 24 hours to 14 days) are complex and encompass many different issues.

Pediatric early return patients have been identified in the health care literature as a group at higher risk for medical management errors and who contribute to emergency department overcrowding. Interest in ED utilization, as it specifically relates to children and their families, has grown over the past decade; the questions "*who* is using the ED" and "*what* are the needs of individuals using the ED" have been the focus of this interest.

The 1988 National Health Interview Survey on Child Health reported that 3.4% (approximately 2 million) of the United States' population 18 years and younger used the ED as their primary source of medical care (Halfon, Newacheck, Wood, & St. Peter, 1996). In 1990, a Canadian-based survey highlighted many factors that contribute to a decision to visit a Canadian ED including: no identified primary care provider, quicker access to healthcare professionals, and the perception that the problem may be beyond the expertise of a regular healthcare provider (Brown & Goel, 1994).

Annual rates of ED visits continue to rise in both Canada and the United States (Brown & Goel, 1994; Li, Lau, McCarthy, Schull, Vermeulen, & Kelen, 2007). Up to 25% of these visits are for children and between one half to one third of these children are seen for nonurgent conditions (Phelps, Taylor, Kimmel, Nagel, Klein, & Puczynski, 2000). Although many authors have discussed adult patients making early returns to general EDs, less is known about pediatric early return visits. Identifying and addressing the underlying factors that contribute to ED early returns could lighten the system burden, inform human resources (e.g., nurse staffing), and increase the effectiveness of nursing interventions with potential early return patients (ERPs). We conducted a review of the current literature examining pediatric ERPs. This review presents an analysis of the extant literature and provides recommendations for ED nursing care, administration, and future research.

Methods

The Search for Primary Studies

We included both published and unpublished studies examining pediatric early return visits (also termed "bounce backs") and characteristics of ERP. The literature search included five electronic bibliographic databases: CINAHL (Cumulative Index to Nursing and Allied Health Literature), Cochrane Controlled Trials Registrar, EMBASE (Excerpta Medica), HealthStar, and MEDLINE. Language (English) and date (1985–2007) restrictions were applied to these databases. Search strategies will be provided upon request. The table of

contents for two journals, *Pediatric Emergency Care* and *Annals of Emergency Medicine*, were hand-searched from 2000–2007. The reference lists of all retrieved studies were reviewed for further relevant citations. Criteria for inclusion included: English language, years 1985 to 2007, return related to emergency department visits; adult and pediatric studies were retrieved. Characteristics of studies with a focus on ERPs can be found in Table A-1.

Reviewed studies focused on a wide variety of factors including quality assurance, diagnostic predictors, demographic predictors, and patient education. The majority of studies were retrospective in design. These studies contained differing definitions of early return visits, but shared common foci on quality assurance, diagnostic predictors, and patient characteristics. A strong medical focus was common to all studies, with limited review and discussion of nursing-specific data and its implications.

Defining Early Return Visits

The time frame for an early return visit varies in the literature, ranging from 24 hrs to 14 days, with 72 hours being the most frequently cited (Depiero, Ochsenschlager, & Chamberlain, 2002; Goldman et al., 2006; Gordon, An, Hayward, & Williams, 1998; Keith, Bocka, Kobernick, Krome, & Ross, 1989). Authors who looked at shorter time frames ($\leq$ 72 hours) indicated an interest in including those patients at risk for medical management errors. Authors who looked at patients returning within 14 days attempted to capture all visits related to the initial complaint (Alessandrini, Lavelle, Grenfell, Jacobstein, & Shaw, 2004;

Depiero et al., 2002; Goldman et al., 2006; Gordon et al., 1998; Keith et al., 1989; Zimmerman, McCarten-Gibbs, DeNoble, Borger, Fleming, Hsieh, et al., 1996).

Quality Assurance

Quality assurance (QA) initiatives in healthcare allow for monitoring of services, performance, and medical/nursing error. Given the unpredictable nature of the ED environment, QA is often a focus for hospital initiatives. Therefore, it is not surprising that QA issues are a frequently cited rationale for studying repeat visit rates to the ED. Typical goals of the QA-based studies reviewed were to identify and reduce medical/nursing management errors and adverse patient outcomes (Alessandrini et al., 2004; Schenkel, 2000). These authors adopted many different approaches to determine how early return visit data can provide QA information in both pediatric-specific and general ED settings.

In order to review factors associated with early return visits, Pierce et al. (1990) identified all pediatric and adult patients returning to a tertiary care American ED within 2 days of their initial visit for a one-year period. A total of 569 patients (3% of the total census during the study period) returned to the ED within 2 calendar days of their initial visit. Patient returns were grouped into reasons for return: patient-related (52.87%), physician-related (8.22%), disease-related (25.35%), and system-related (3.56%). Eight percent of the patients identified multiple reasons for returning. Physician-related factors such as errors in diagnosis accounted for a smaller percentage than the authors expected.

However, patients who had physician-related reasons for returning to the ED were more than twice as likely to require hospital admission on re-evaluation as patients returning for other reasons. The authors concluded that regular reviews of ERP should be included in comprehensive ED-based programs for quality assurance (Pierce, Kellerman, & Oster, 1990).

In a 6-month retrospective review, Keith et al. (1989) examined pediatric patients returning to the ED within 72 hrs to determine whether revisits would be a useful quality assurance tool (Keith et al., 1989, p. 964). Similar to Pierce et al. (1990), Keith et al. hypothesized that early return patients represented a group at high risk for medical management errors. In a six-month period, 455 patients (3.4%) returned to the ED. Of these returns, 73% (n = 297) were considered unscheduled and 32% (n = 96) were considered avoidable. Of avoidable visits, 39.6% represented deficiencies in medical management, i.e., diagnostic errors, 14.6% (n = 14) represented deficiencies in prescribed follow-up, 20.8% (n = 20) related to patient education, and 36.5% (n = 35) represented deficiencies in patient compliance, i.e., failing to fill prescriptions. This study determined that 85% of patients with avoidable visits and 92% of patients with medical management deficiencies had returned within 48 hrs. The authors concluded that 48 hr monitoring of patient visits is an effective quality assurance tool for medical management, follow-up, and patient education (Keith et al. 1989).

In contrast, Depiero et al. (2002) hypothesized that "most repeat visits resulting in hospitalization do not represent medical errors" (Depiero et al., 2002, p.159). Their retrospective chart review involved 261 pediatric patients who

returned to a pediatric-specific ED within a 72 hour period, and required admission. Over a 12-month period, the admission rate of patients returning within a 72 hour period was 0.56% (n = 285). An overall early return rate was not noted. Of those 285 patients, 24 patients were excluded, leaving 261 patients available for analysis. In this medically focused review, progression of illness was determined to be the cause of the repeat visit in 90% (n = 234) of the cases, 3.8% (n = 10) had a missed diagnosis, 0.8% (n = 2) had an error in treatment, 2.7% (n = 7) had an incomplete workup, and 3% (n = 8) had parenting factors. The authors concluded that, in most cases, patients who returned for hospitalization did not do so because of physician error. Depiero et al. questioned the use of assessment of repeat visits as a quality improvement tool; the risk of medical error for patients who made early return visits but did not require admission was not discussed.

Diagnostic Predictors of Early Return Visits

Diagnostic predictors of early return visits are frequently discussed in general and pediatric emergency literature. The potential for targeting diagnostic groups for more aggressive initial healthcare management and avoidance of unnecessary returns are the ultimate goals of such studies.

Gordon et al. (1998) identified diagnostic predictors of early return visits to the general ED by reviewing billing information, and by a survey distributed to health professionals to identify opinions of staff on what diagnoses were most likely to return within 3 days. Data from patients who made early return visits

within 72 hours of initial presentation were included in the study. The annual census of their general emergency department was 52,553 with the early return population totaling 2.7% (n = 1,422) (Gordon et al.). Dehydration was the most common initial diagnosis in both pediatric and adult populations. Dehydration was strongly represented in the ERP (15%) and the return-admit population (25%) compared to its prevalence in the general ED population (7%). Gordon et al. concluded that health professionals underestimate the risk to the dehydration diagnostic group, that the initial ED diagnosis may be a predictor of early return and that early return information can act as an indicator for groups needing screening, prevention protocols, and education.

In 1992, a Taiwanese study was conducted using a retrospective chart review to determine which physical assessment and laboratory examinations were critical in avoiding return visits (Hu, 1992). Included were pediatric patients identified at registration as having presented to the ED twice in a 7-day period between August 1990 and February 1991. From 1099 charts, the study calculated a 4.9% return rate over a seven day period, with 90% of visits deemed avoidable re-presenting within 72 hrs. Hu noted that children at high risk for early return included those with diagnoses of fever, abdominal pain, chest pain, nausea/vomiting, and shortness of breath. The author suggested that more thorough physical examinations and clinical investigations (specifically white blood cell count and chest x-ray) lower ERP numbers.

Patient Characteristics

Within the last 15 years, several studies were conducted that focused on defining the socio-economic, demographic, and clinical characteristics of patients who make early return visits. Zimmerman et al. (1996) and Alessandrini et al. (2004) independently performed chart reviews of American pediatric ED populations. Zimmerman et al. focused on determining return rates and associated demographic and clinical variables in pediatric patients attending a general ED. Data was collected for a one year period from July 1, 1992 to June 30, 1993. During the study period, 4276 children visited the ED. In the ERP population, almost 6% (n = 242) were determined to have returned for diagnosis-related complaints. Of these patients, 200 (82.6%) had unanticipated returns, most without a clear medical need. The authors concluded that an increase in repeat visits was significantly related to respiratory diagnoses, the presence of public insurance, and an age less than 2 years old at presentation.

Alessandrini et al. (2004) studied pediatric patients returning to an American pediatric ED within 48 hours. The return rate over one year was 3.5% (n = 1893) with 78.5% (n = 1487) of returns being unscheduled. Infectious diseases were the most common diagnosis on return visits with 44.8% (n = 846) of the population receiving a diagnosis in this category. The authors reported that pediatric ERPs were more likely to be (1) younger than 2 years of age, (2) admitted for care on the 2nd visit, and (3) triaged as acute cases. Based on these findings, Alessandrini et al. concluded that a system to call patients back to the ED might be an efficient quality improvement tool.

Goldman et al. (2006) published the first ERP study in a Canadian pediatric tertiary care centre. The authors reviewed ERPs for one year and compared the demographic information with patients who did not return to the PED; particular emphasis was placed on demographic information, age, acuity, time of day at presentation, and season of presentation. Diagnostic information was not included. The authors found that 5.2% (n = 1990) of the ERP population returned within 72 hours, with some patients returning more than once. Age was found to be the most significant influence on early return visits with patients < 6 years old having the highest return frequency. Patients with urgent triage scores also returned with higher frequency. These results are consistent with reports in the American literature as well as in the few Canadian studies that have been done (Alessandrini et al., 2004; Zimmerman et al., 1996; Jacobstein et al., 2005).

Parental Factors

In 1990, an Ontario Health Survey of ED visits identified a U-shaped distribution for age at utilization, with the youngest and oldest groups having the highest proportion of visits. Children aged 0–5 years had the greatest number of ED visits (Brown & Goel, 1994). The plausible biological reason for children in this age group to require treatment more often than older individuals is that younger age correlates with a higher incidence of infectious disease. This higher incidence alone can increase parental anxiety (Brown & Goel, 1994). In a study conducted by Phelps et al. (2000), more than 1/3 of caregivers of children with nonurgent presentations viewed their children as requiring immediate care,

highlighting the need for communication and reassurance (Phelps, Taylor, Kimmel, Nagel, Klein & Puczynski, 2000).

ED utilization and pediatric early return visits are influenced by factors beyond a child's medical condition at the time of visit. The need to reassure parents has been addressed in the literature (Guttman, Nelson & Zimmerman 2001). Children often cannot tell their caregivers what exactly is wrong, and caregivers desire to end their children's suffering; these are powerful factors in determining ED use. Parental responsibility appears to equate with parents being unwilling to take chances with a child's well-being (Guttman et al. 2001)

Emergency Department Utilization

Unnecessary ERP visits are frequently cited as a source of ED overcrowding (Goldman et al., 2006; Hu, 1992). Visit appropriateness is a focus repeated in the literature with an estimate of between one and two-thirds of ED visits deemed nonurgent (Buesching, Jablonowski, Vesta, Dilts, Runge, Lund. et al. 1985; Guttman et al., 2001; Phelps et al., 2000). In a statement issued in 2004 by the *American Academy of Pediatrics Committee on Pediatric Emergency Medicine*, ED overcrowding was not attributed to nonurgent problems, but rather to an increasing number of pediatric patients with serious illness or injury (American Academy of Pediatrics Committee on Pediatric Emergency Medicine, 2004). These discrepancies in the published literature likely reflect the differing times and conditions in which studies were conducted. Phelps et al. (2000) conducted a descriptive study using a questionnaire to determine characteristics

of American parents who bring their children to the ED for nonurgent care. They found that education alone does not necessarily reduce nonurgent ED usage, but may guide parents' decision making (Phelps et al., 2000). Results suggesting interventions including increased access to medical care, telephone triage systems for support at home, and greater reliance on the primary care physician were often seen repeated in the literature on ERPs (Guttman et al., 2001; Hu, 1992).

Several studies suggested that low income and/or lack of insurance promotes increased ED usage. McCabe (2001) stated that "the growing number of uninsured and underinsured patients results in more use of the emergency department, delays in seeking needed medical attention, and a worse health status when patients do seek treatment" (McCabe, 2001, p. 672). While Canadian public healthcare differs from American private healthcare, McCabe's statement is also relevant to Canadian ED utilization. According to Brown and Goel (1994), Canadian adults of low socioeconomic status (SES) visit the ED more often than adults with moderate or high SES, even after statistical adjustments are made for age, accidents, and health problems (Brown & Goel, p. 1089).

Soliday and Hoeksel (2001) prospectively studied American pediatric ED utilization using both quantitative and qualitative data to inform their analysis and recommendations. Using the Health Belief Model as a guiding framework, Soliday and Hoeksel used open- and close-ended questions to survey parents' health beliefs and attitudes related to ED utilization. Children's ED visits

increased where parents perceived greater financial barriers, where parents had public insurance, and where a child's illness fell outside regular office hours. There was no suggestion that younger patients were seen more frequently; in fact, the authors suggested that ED utilization "waxes and wanes across developmental stages" (Soliday & Hoeksel, 2001, p. 11).

Patient Education

Given their knowledge and proximity, nurses are well suited to educate patients, parents, and caregivers. However, time constraints and lack of familiarity with these individuals, who are understandably under stress, make education efforts challenging. Patient education and its relationship to early return visits is another area in the literature with considerable gaps.

Grover et al. (1994) used exit interviews to determine parental recall of emergency teaching regarding their child's diagnosis, treatment, and follow-up. Interviews were conducted 10 minutes after instruction was provided. Study results showed a clearly identified need to explore ED education further; only 30% of parents could recall the name of a single prescribed medication, and only 51% knew how to administer it. The authors also found that written instructions did not improve parental recall and that many parents were unaware that they were given written instructions (Grover, Berkowitz, & Lewis, 1994.).

In a published abstract, Letourneau et al. (1990) discussed findings from a prospective study of American pediatric ERPs. Telephone interviews were conducted for ERPs (n = 126) and a control group (n = 184) regarding patient

satisfaction, compliance, understanding, and socioeconomic status. The study found that significantly more ERPs compared to the control group reported problems with having their concerns addressed and the authors concluded that "physician assessment of parental understanding and satisfaction during discharge discussion may require more careful attention" (Letourneau et al., p. 446). This recommendation echoes Keith et al.'s (1989) work which highlighted educational deficits such as inappropriate discharge instructions and failure to instruct the patient/family on the natural course of the disease and the efficacy of therapy. While these studies do not lend a nursing focus, their conclusions have implications for nursing interventions and care in the ED.

Discussion

While several studies have explored the variables that impact early returns to the ED from a variety of different perspectives, each has addressed a discrete component of what is shown to be a complex and multifaceted problem. A comprehensive understanding of the underlying factors that contribute to early return visits to the ED can ameliorate undue system burden and inform human/resource decision making and nursing interventions.

The ERP studies reviewed here demonstrate significant heterogeneity in variables of significance; they are inconsistent in their description of salient ERP characteristics, and are inconsistent in making concrete recommendations for change. For instance, while multiple studies suggest that particular diagnoses are at high risk of return, there was significant heterogeneity in the diagnostic

data. A wide variety of diagnoses were discussed as high risk for return including trauma, dehydration, respiratory diagnoses, and infectious diseases. This lack of homogeneity is not surprising considering that most studies were conducted at single centers and may have had results specific to the population in that area.

Inconsistencies were also noted in study descriptions and explorations of ERP related variables. While descriptions of parental education, socioeconomic status, and satisfaction were found to be relevant, they were not consistent variables of study. There have not been any studies that discussed defining variables of study in order to explore the ERP on a national level in Canada or the United States. Finally, while variables such as missed diagnoses and treatment error were found to be significant, there was little suggestion of how to change current practice or how to better define what type of patients or diagnoses are at increased risk of medical management errors. Inclusion of parents in the discussion could provide a level of detail related to why ERPs come back that cannot be achieved through a retrospective approach.

Based on the findings, we recommend that future ERP studies (1) use previous ERP literature to identify salient ERP characteristics and variables of healthcare utilization to inform their study design, (2) use a prospective study design to better describe patients and families that use the ED as a regular source of care for nonurgent conditions, and (3) use descriptive methods to explore why parents choose to return to the ED. All three recommendations will lend an understanding of what factors moderate and mediate ED visits and better

facilitate the development of specific interventions and/or programs to address early return visits.

Although the literature in this review had a strong focus on the role of medicine, the problem of early return visits to the ED has implications for nursing practice. QA studies can inform recommendations that span the system, from administrative to bedside healthcare providers. The majority of QA studies in this review, however, do not provide specific recommendations for decreasing ERPs from a nursing administrative and care perspective. Emergency nurses are frontline providers of care, and often have the most interaction with patients and their families. This places nurses in an opportune position to identify and address early return visits. The types of roles that nurses could play in addressing the issue of early return visits has yet to be explored.

Only one study in this review was Canadian-based. Considering the service delivery differences between American and Canadian healthcare systems and the differing issues of accessibility in the different systems, American studies have limited usefulness to Canadian administrators and clinicians. Studies of ERPs in Canadian EDs are indicated to provide an understanding of this issue in Canada.

Conclusion

Concern for early return visits to the ED appears frequently in the literature, but focuses mainly on adult patients in the United States with overt emphasis on quality assurance and overcrowding. Available pediatric studies

focus on a broad variety of factors including age, insurance coverage, quality assurance issues, and patient education. This literature review highlights a lack of investigation of factors that motivate parents to return to the emergency department. The relationship between patient education and parental anxiety has not been addressed in this context. The next step in early return visit studies will concentrate on parent focused prospective data—for what reasons do parents choose to return to the ED? It would be beneficial to see how demographics, diagnostics, and education relate to parents' motivations to return to the ED. Finally, although there are a number of American studies of the pediatric ED setting, there is a dearth of studies conducted in the context of the Canadian medical system, for both general and pediatric emergency departments. The Canadian perspective is imperative to determine the impact of pediatric early returns on the Canadian healthcare system. The goal of the recommended studies would be to lighten the burden on the Canadian healthcare system, to find out how to best utilize resources, and to guide interventions directed at preempting potential early returns to the ED.

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Table A-1

Characteristics of Early Return Studies

Source	Study Design/Population	Time to Return	Outcome Measures	Conclusions
Alessandrini et al. 2004 American pediatric tertiary care hospital	Retrospective cohort study Return visits: 1742 pediatric patients Mean age was 4.6 +/– 4.9	48 hours Multiple returns were recorded	Return visit within 48 hours Associated variables including acuity, time and date of visit, discharge diagnoses	Return rate was 3.5% (n = 1893) with 78.5% (n = 1487) of returns being unscheduled. Infectious diseases were the most common diagnosis. More likely to be younger than 2 years, admitted on return and triaged as acute. A system to call patients back to the ED may be an efficient quality improvement tool
Baer et al. 2001 American tertiary care hospital	Retrospective chart review n = 6290;174 repeat visits September 2000	Within 7 days	Diagnosis, disposition, time of ED stay, length of stay, time to ED presentation	Compared with other ED patients, returning patients have a longer length of stay, incur higher ED charges, and are admitted more frequently.
Depiero et al. 2002 American tertiary care hospital	Retrospective chart review n = 51,195; 285 adult and pediatric patients hospitalized after a repeat visit Return visits resulting in hospitalization: 261 Date: 12 month period starting in January 1996	72 hours	Admission rate on return visit QA improvement decisions: failure to consult, missed diagnosis, incomplete workup, missed diagnosis, parenting factors	Admission rate was 0.56%. Progression of illness was determined to be the cause of the repeat visit in 90% (n = 234) of the cases, Questioned the use of assessment of repeat visits as a quality improvement tool.
Goldman et al. 2006 Canadian pediatric	Retrospective chart review n = 37,725;1990 repeat visits	Within 72 hours Multiple returns	Age, return rate, acuity, time of day, season of year	5.2% of their population (n = 1990) returned at least once within 72 hrs.

tertiary care hospital	age: 0–19years Jan. 1 to Dec. 31, 2003	were recorded.		Age and triage scores were most significant influence on early return visits.
Hu, S.C. 1991 Veterans' General Hospital – Taipei (Taiwan)	Retrospective chart review Aug. 1, 1990 to Feb. 28, 1991 n = 22,471; 1099 revisits	Within 7 days	Chief complaint, body system, routine laboratory examination, arrival time, discharge time, final diagnosis, compliance with physician instructions, taking medications, discharge instructions provided	The revisit rate was 4.9%; 856 were unscheduled and 33 were scheduled. Of the unscheduled 70 were avoidable, 786 were unavoidable. Of the 70 avoidable revisits, medical deficiencies including diagnosis and treatment accounted for 34 (48.6%) and 32 (45.7%), respectively.
Jacobstein et al. 2005 American pediatric tertiary care hospital	Case control study Nov. 1999 to Jan. 2000 Pediatric population age range not stated n = 15,384; 515 repeat visits 75% completed the study	Repeat visit: a visit made within 72 hours	Age, chronic disease, residence, caregiver related reasons i.e., age, education, employment, time of visit, triage status, treating physician trained in pediatric ER medicine or pediatrics	These factors may be used to identify children in the ED at greater risk for URV and may point to a need for improved discharge instructions and enhanced communication with primary care and systems to arrange follow-up.
Keith et al. 1998 American tertiary care hospital	Retrospective chart review Jun. and Dec., 1987 n = 13,261; 455 repeat visits Age range not stated	Repeat visit: a visit made within 48 to 72 hours	Deficiencies in medical management, appropriate prescribed follow-up, patient education, patient compliance	455 (3.4%) patients returned. 32% (n = 96) were considered avoidable. Of avoidable visits, 39.6% (n = 38) represented deficiencies in medical management, 14.6% (n = 14) deficiencies in prescribed follow-up, 20.8% (n = 20) related to patient education, and 36.5% (n = 35) deficiencies in patient compliance. 85% of avoidable visits had returned within 48 hrs, as had 92% of those patients considered to have had medical management deficiencies.

				The authors concluded that 48 hr monitoring of patient visits is an effective quality assurance tool.
Letourneau et al, 1990 American pediatric tertiary care hospital Abstract	Prospective study survey based Dec. 1988 to Feb. 1989 221 patients Age range not stated	Repeat visit: a visit made within 48 hours	Patient satisfaction, compliance, understanding, socioeconomic status, diagnoses	Return rate was 2.6% (221 of 8579 patients) Physician assessment of parental understanding and satisfaction during the discharge discussion may require more careful attention. The fact that more unscheduled return visits than control group (not making return visits) patients were seen overnight when there was no supervising attending physician available suggests the importance of senior physicians in the ED at all times. There were no "high-risk" diagnoses. The leading diagnoses in both groups were routine and medical
Pierce et al. 1990 American Tertiary care hospital	Retrospective chart review n = 17,214; 569 repeat visits Jul. 1 to Sep. 30, 1987 Age range not stated	Within 48 hours	Return rate, reason for return i.e., patient-related, physician-related, system-related reasons.	Patient-related returns (52.87%) Physician-related returns (8.22% Disease-related returns (25.35%) System-related returns (3.56%) Physician-related factors accounted for a smaller percentage than expected. Patients who had physician related returns were more than twice as likely to require hospital admission on return. The authors concluded that regular reviews of ERP should be included in

				comprehensive ED-based programs for quality assurance.
Zimmerman et al. 1996 American primary teaching hospital	Retrospective chart review Jul. 1, 1992 to Jun. 30, 1993 n = 4276; 291 repeat visits age: <18 years	Within 14 days of the original visit	Return rate, percentage of related repeat visits that were unanticipated	In the ERP, almost 6% (n = 242) of patients were determined to have returned for diagnosis-related complaints. Of these patients, 200 (82.6%) had unanticipated returns, most without a clear medical need. The authors concluded that there was a significant increase in repeat visits related to respiratory diagnoses, the presence of public insurance, and age at presentation (less than 2 years old).

Appendix B
Information Sheet for Parents

Characteristics of Patients who Make Early Return Visits to the Pediatric Emergency Department

Researchers:

Erin Logue MN Candidate Phone 407-3737	Jude Spiers, RN PhD Phone 492-9821	Janice Lander, RN, PhD Phone 492-6317	Samina Ali, MD, FRCPC(PEM),FAAP Pediatric / EM Phone 407-3740
Faculty of Nursing	University of Alberta, Edmonton, Alberta		Stollery Children's Hospital

Purpose
We are doing a study to understand the reasons why parents bring kids back to Emergency. We hope that your information will help us to improve the care we give in Emergency.

How we are doing this study
We are asking parents to answer some questions about their time in the Emergency and why they came back. We will also look at the child's hospital chart from their visits to Emergency.

What you need to do
There is a survey for you to fill out. It should take about 10 – 15 minutes for you to answer our questions. When finished, please put the form into the envelope and seal it. You can place the envelope in the box at the nurses' desk. Or, you can give it to your nurse. None of the information will be seen or used by the Emergency staff.

What we will do
We will study the answers on your survey. We would also like to look at your child's chart. We will take information about the health problem and care given for this visit and the last one.

Consent
You can say yes or no any or all of the study parts. Answering the study questions is your choice. You do not have to answer any questions you do not want to. You should not feel any pressure from Emergency if you do not want to join the study. Your child's care will not be affected in any way. Answering the questions will be taken as your agreement to join the study. If you decide to fill out the study questions you can still say no to a review of the chart.

Benefits, Risks and Costs
This study has no benefits, risks, or costs to you. We hope the information you give will help improve the care in Emergency.

Confidentiality

- Your information will not be shared with anyone in Emergency.
- All information in this study will be kept for at least five years in a secured area. It will not be destroyed. The information may be looked at again in the future to help us answer other study questions. If so, the ethics board will first review the study to make sure that the information is used ethically.
- Only the research team will see your information.
- Your name, your child's name, and any personal health information will not be attached to your information.
- Your name or your child's name will never be used in any presentations or publications of the study results.
- All information will be held private, except when professional codes of ethics or the law requires reporting (i.e. child abuse)

Concerns
If you have any concerns about any aspect of this study, you may contact the Patient Relations Department of the Capital Health Authority at (780) 407-1040. Or please feel free to call any of the numbers listed below with questions.

Erin Logue 780-407-3737
Jude Spiers 780-492-9821
Janice Lander 780-492-6317
Samina Ali 780-407-3740

Appendix C

Survey Tool for Parents in the Pediatric Emergency Department

Chart Review
To get a good understanding of your emergency experience, we would like your permission to look at your child's chart to get some information e.g. age, gender and diagnosis. You can say no to any or all of this study. Even if you choose to let us review your child's chart, you do not have to complete the survey. You can place this form into the envelope, and stop now.

You may look at information on my child's chart (please circle one)

Yes **No**

Survey
Thank you for taking the time to fill out this survey. The purpose of this study is to help understand the characteristics of children who return to the emergency department in a short period of time and understand from a parents' point of view why they felt their child needed to return to the emergency department.
If you decide to be in this study please answer the questions below and seal the finished survey in the envelope. Please return the survey to your nurse, doctor or to the collection box at the nurse's desk.

Section A (for the nurse or doctor to fill out)
Patient age and birth date (dd/mm/yyyy)

_____
Date and time of initial visit (dd/mm/yy, 24:00 clock)

_____
Date and time of second visit (dd/mm/yy, 24:00 clock)

_____
Chief complaint as recorded in the problems section of the Emergency Record

_____

_____

Section B (for the parent to fill out)

These questions will help us understand why you have come back to emergency.

1. My reasons for bringing my child back to Emergency are:
(Please use the back of this page if additional space is needed)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Please check all of the following that apply to you

1. My doctor's office was closed	
2. I was not able to get an appointment with my doctor during office hours	
3. The on call doctor or Health link told me to come in	
4. I left from my first visit without being seen by a doctor or against medical advice	
5. My child's symptoms got worse or changed	
6. My doctors office sent me in	
7. I was not happy with the doctor's recommendations	
8. I thought my child would be better by now	
9. My child is sick or injured with something else.	
10. The doctors in Emergency asked us to come back for a re-check	

Any other reasons?

_____

_____

These questions help us understand what information you were given about your child's illness during your last visit.

2. What did doctors, nurses or other staff tell you about your child's illness during your last visit?

_____

_____

_____

_____

3. What did doctors, nurses or other staff tell you about what to expect at home following your first visit?

_____

_____

_____

_____

4. What did doctors, nurses or other staff tell you about when to return to emergency?

_____

_____

_____

_____

5. Did you receive any written information about your child's illness?

☐Yes

☐ No

a. If yes, on a scale of 1 to 5 where 1 is not very helpful and 5 is very helpful; how helpful did you find the written information?

1	2	3	4	5
Not very helpful				very helpful

b.

_____

_____

These questions help us understand how you have been feeling about your child's illness.

7. On a scale of 1 to 5 where 1 is not very stressed and 5 is very stressed; how stressed have you felt about your child's illness?

1	2	3	4	5
Not very stressed				very stressed

8. I feel I can communicate my true concerns to the doctor.

1	2	3	4	5
Strongly disagree				Strongly agree

9. I worry about whether a trip to the doctor may be unnecessary.

1	2	3	4	5
Strongly disagree				Strongly agree

These questions give us some background information on you and your family.

10. How are you related to this child?

☐Mother

☐Father

☐ Other (please specify) _____

11. This is my:

☐First child

☐Second child

☐Third child

☐Fourth or more

12. How old are you?

☐<18 ☐18-24 ☐25-29 ☐30-34

☐ 35-39 ☐40-44 ☐45-50 ☐ >50

13. What is the highest level of education you have completed?

☐High school graduate ☐Community college

☐University ☐None of the above

14. Do you have a Family Doctor?

☐ Yes

☐No

15. Do you have a Pediatrician?

□ Yes □No

Appendix D

Data Collection Tool for Chart Review

1. **Childs age as of last birthday (in months if child is less than one year of age)**_____

2. **Male** ☐ **Female** ☐

3. **Timing of visit in 24hr clock and day of week**

   1st visit time _____

   Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐

   Sat ☐ Sun ☐

   2nd visit time _____

   Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐

   Sat ☐ Sun ☐

4. **Postal code** _____

5. **Triage Category** (circle one)

   1 2 3 4 5

6. **Time to return (number of hours between discharge of the initial visit and arrival to Triage desk on the second visit) round to the nearest hour**
   Time of discharge of initial visit_____

   Time of arrival of return visit_____

7. **Intial Diagnosis**_____

8. **Diagnosis on return visit**_____

9. **Primary Physician** Y ☐ N ☐

10. **Referrals/follow-up (i.e., Plastic surgery, Orthopedics, IV therapy, referral back to primary physician or Pediatrician). Y** ☐ **N** ☐

11. Initial visit **Admitted** □ **Discharged** □

12. Return visit **Admitted** □ **Discharged** □

13. Scheduled □ **Unscheduled visit** □

14. Discharge instructions Written □ Verbal □

Who gave the discharge instructions MD □ RN □ LPN □ RT □

Missing Data will be recorded as 9999

Illegible data will be recorded as 7777